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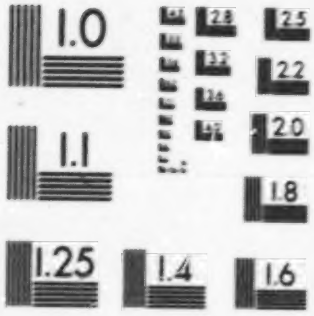

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ABSTRACT

Perceptions of a sample of professors at Indiana University concerning the competencies of freshman students in the basic skills of reading, writing, mathematics, and study skills were investigated. Interviews were conducted with 77 professors who teach lower division courses. Results were tabulated for the total group and separately for the three academic divisions: humanities, social sciences, and sciences. Reading was the basic skill receiving the highest rating from all professors. Writing and study skills were rated as adequate by fewer than half of the interviewees. Humanities professors tended to give higher ratings to reading, writing, and study skills than did professors in the other two academic divisions. The majority of the professors felt that basic skills have declined in the past five years and they attributed the decline to the lack of preparation at the high school level. Based on the survey results, it is concluded that: most faculty members are in favor of having remedial courses in the basic skills; understanding the main idea was the specific reading skill considered most important to successful achievement; undergraduate students are required to write in classes in all departments and special attention is being directed to improving the quality of students' writing; faculty members are more concerned with students' proficiency in the basic mathematical operations than with their proficiency in algebra and geometry; students' study skills are considered extremely important to success in college; and a sizable proportion of the faculty members consider their students' study skills to be inadequate. (SW)

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FACULTY PERCEPTIONS OF THE BASIC SKILLS OF UNIVERSITY FRESHMEN

Lucy Cheser Jacobs

INDIANA STUDIES IN HIGHER EDUCATION
NUMBER FORTY-FIVE

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Abstract

This study interviewed a sample of 77 professors who teach 100-level courses at Indiana University concerning their perceptions of the competencies of freshman students in the basic skills - reading, writing, mathematics, and study skills. Results were tabulated for the total group and separately for the three academic divisions: humanities, social sciences, and sciences. Reading was the basic skill receiving the highest rating from all the professors. Writing and study skills were rated as adequate by fewer than half of the interviewees. Humanities' professors tended to give higher ratings to reading, writing, and study skills than did professors in the other two academic divisions. The majority of the professors felt that basic skills have declined in the past five years and the decline was attributed to the lack of preparation at the high school level.

TABLE OF CONTENTS

	Page
Introduction	1
Methodology	1
Results	1
Reading	8
Writing	9
Mathematics	15
Study Skills	17
Conclusions	19

LIST OF TABLES

Table		Page
1	Percent of respondents who gave each proficiency rating on students' basic skills	2
2	Percent of respondents who report improvement or decline in basic skills in last five years	3
3	Percentage favoring the setting of standards in basic skills as a requirement for high school graduation	3
4	Percentage favoring basic skills programs at the University for students deficient in basic skills	4
5	Ratings of the importance of reading skills for success in class (percentages)	4
6	Ratings of student reading skills (percentages) given by respondents in the three academic divisions	5
7	Percentage of respondents in the three academic divisions who report improvement or decline in reading skills	5
8	Priorities assigned by respondents to specific reading skills (percentages)	6
9A	Faculty ratings (percentages) of students' proficiency on specific aspects of reading performance	7
9B	Mean ratings given to aspects of reading performance by faculty in the three academic divisions	7
10	Amount of reading required per week and type of reading assignment most often required according to academic division (percentages	8
11	Ratings of the importance of writing skills for success in classes	9
12	Ratings of students' writing skills by respondents in the three academic divisions (percentages)	9
13	Percentage of respondents in the three academic divisions who report improvement or decline in writing skills	10
14	Types of writing assignments in lower division classes (percentages)	10
15	Number of writing assignments during the semester in the three academic divisions	11
16	Priorities assigned by respondents to specific writing skills (percentages)	13
17	Frequency with which writing problems are encountered (percentages)	13
18	Ratings of the importance of mathematics skills for success in classes	15
19	Priorities assigned by respondents to specific mathematical skills (percentages)	16
20	Faculty ratings of students' basic mathematical skills (percentages	16
21	Ratings of the importance of study skills for success in class (percentages)	17
22	Ratings of students' study skills by respondents in the three academic divisions (percentages)	18
23	Percentage of respondents in the three academic divisions who report improvement or decline in study skills	18

Introduction

Within recent years there has been a great deal of discussion concerning the proficiency of today's students in the basic skills of reading, writing, and mathematics. Many secondary school teachers, university faculty, and members of the general public believe that students today are less literate than they were twenty years ago. The concern about the basic skills of the youth graduating from high schools in the U.S. has resulted in a movement toward minimal competency tests at the secondary level and to remedial curricula in basic skills at the post-secondary level. A recent survey indicated that while the total number of courses offered by colleges and universities increased by 15 percent from fall 1979 to fall 1980, the number of remedial courses increased by 22 percent (Chronicle of Higher Education, June 1, 1981). This increase in remedial courses was evident at private as well as public institutions.

The purpose of this study was to survey faculty members at Indiana University concerning their perceptions of the competencies of freshman students in the basic skills - reading, writing, mathematics, and study skills.

Methodology

A total of 77 faculty members who were teaching lower division courses at Indiana University during the fall semester, 1981, was interviewed concerning their perceptions of the proficiency of their students in the basic skills. In order to focus on the proficiency of entering freshman students, the sample was restricted to faculty teaching 100-level courses. The sample was drawn from a list of all faculty members who were teaching lower division classes. Two interviewers were responsible for contacting the professors on the list and setting up appointments for the interviews. Among the 77 with whom interviews could be arranged were 33 (or 42.9%) from the humanities, 28 (or 36.4%) from the social sciences, and 16 (or 20.8%) from the sciences (biological, physical, and mathematics).

Each interview followed a prescribed schedule of questions. A copy of this interview schedule is available upon request. The interview was designed primarily to ascertain the faculty members' perceptions of the proficiency of their students in the basic skills of reading, writing, mathematics, and in basic study skills. Secondly, the interview sought to determine the amount of reading and writing required in the various courses as well as to identify the most prominent weaknesses observed in the basic skills. The results were tabulated for the total group as well as separately for the three academic divisions: humanities, social sciences, and sciences.

Results

The first question focused on the professors' perceptions of the proficiency of their students in the basic skills. Table 1 shows the percent of the faculty members who gave each proficiency rating as well as the mean rating for each basic skill (based on a five point scale).

Findings for the total group will be presented first and in later sections responses from the three academic divisions will be compared.

Table 1. Percent of respondents who gave each proficiency rating on students' basic skills.

Rating	Reading (N=77)	Writing (N=77)	Mathematics (N=77)	Study Skills (N=77)
Excellent	0	0	0	0
More than Adequate	14	9	1	4
Adequate	56	36	14	47
Less than Adequate	23	36	13	38
Very Poor	1	5	3	3
No Response (Insufficient information)	5	13	69	9
Mean Rating*	3.12	3.43	3.54	3.43

*Excellent=1, Very Poor=5

The data in Table 1 show that no respondents indicated that their students were "excellent" in any of the basic skills. Reading skills were rated slightly higher than the other basic skills. Seventy percent of the faculty members thought that students' reading skills were either "adequate" or "more than adequate." Forty-one percent of the respondents rated the writing skills of their students as "less than adequate" or "very poor," although 36 percent considered writing skills "adequate." It will be noted that a large percent (69) of the sample was not able to rate students on mathematics. Those faculty who were able, however, were almost equally divided between ratings of "adequate" or "less than adequate." Nearly one-half of the faculty members interviewed thought that study skills were "adequate," although 38 percent considered them "less than adequate."

The faculty members were asked whether they had seen an improvement or a decline in basic skills over the past five years. A number of the respondents were not able to provide an answer to this question either because they had not been teaching for that length of time or because they lacked adequate information about the students' skills, especially in mathematics. Table 2 summarizes the perceptions of the faculty members concerning the change in basic skills.

It can be seen that the professors tend to see a decline rather than an improvement in students' skills over the past five years. The majority of those responding to this question reported a decline from slight to moderate in all of the basic skills. Thirty-nine percent of the respondents thought that reading skills had declined while only 13 percent reported any improvement. The corresponding proportions for writing skills were 32 and 15 percent respectively. Eleven percent of the respondents thought that mathematics skills had declined; however, 14 percent had not observed any change. Forty percent reported a decline in study skills.

The faculty members who reported a decline in basic skills were asked how they would account for the decrease in proficiency. The most

frequently reported response was that the deterioration in skills was due to a decline in the quality of education at the secondary level. Professors do not believe that students' basic skills are being developed at the high school level. "Students aren't required to read and write in the high schools" was a typical response. Other respondents mentioned the negative influence of television and outside jobs on the development of basic skills. Another frequently reported reason for the decline was the lack of motivation and interest in achieving on the part of students. One humanities professor said, "Students seem less interested in being students than ever before. On the average, I don't sense a feeling that the students care."

Table 2. Percent of respondents who report improvement or decline in basic skills in last five years. (N=77)

	Reading	Writing	Mathematics	Study Skills
Improvement				
Slight	10	8	3	7
Moderate	3	7	1	4
Great	0	0	0	0
Decline				
Slight	30	18	5	23
Moderate	9	13	5	17
Great	0	1	1	0
No change	16	17	14	18
Insufficient information	32	36	70	31

When asked if they were in favor of setting minimal standards in basic skills as a requirement for high school graduation, 83 percent of all the professors interviewed thought that there should be standards. Those who opposed having standards indicated the difficulty of implementing such a program and the pressure it would place on students as the main objections to such a requirement (see Table 3). One professor said, "Students should not be penalized for the poor teaching by teachers."

Table 3. Percentage favoring the setting of standards in basic skills as a requirement for high school graduation.

	YES	NO
Humanities	88	12
Social Sciences	71	29
Sciences	94	6
TOTAL	83	17

Assuming that standards would not be set as a requirement for high school graduation, the professors were overwhelmingly in favor of having basic skills programs at the University for those students who were deficient (see Table 4). More than 84 percent of the respondents were in favor of such remedial programs. Most of those opposed stated that they felt the students should have these basic skills when them come to the University. One professor who was opposed said, "The University is suffering from lack of funds. We shouldn't waste money on basic skills programs when it is needed for the more important regular University classes."

Table 4. Percentage favoring basic skills programs at the University for students deficient in basic skills.

	YES	NO
Humanities	88	12
Social Sciences	89	11
Sciences	69	31
TOTAL	84	16

READING

The respondents were asked to rate the importance of reading skills to success in their classes. Table 5 reveals that professors in the humanities see reading as being more important for successful achievement than do professors in the other academic divisions.

Table 5. Ratings of the importance of reading skills for success in class (percentages).

Rating	Humanities N=33	Social Sciences N=28	Sciences N=16	Total N=77
Extremely important	79	64	38	65
Important	18	36	56	32
Unimportant	3	0	6	3
Not at all important	0	0	0	0

Nearly 80 percent of the humanities' respondents and 64 percent of the social sciences faculty considered reading as "extremely important." Respondents in the sciences tended to see reading as "important."

Professors were asked to rate their students on reading skills. Table 6 cross-tabulates the ratings of reading skills by academic division. Faculty members in the humanities tended to give higher ratings to students' overall reading skills than did respondents in the other two areas, although the difference was not significant.

Table 6. Ratings of student reading skills (percentages) given by respondents in the three academic divisions.

Rating	Humanities N=33	Social Sciences N=28	Sciences N=16
Excellent	0	0	0
More than adequate	24	7	6
Adequate	49	54	56
Less than adequate	21	29	19
Very poor	0	0	6
No response	6	0	13
Mean rating	2.96	3.21	3.29

It was also interesting to compare the responses of the faculty members in the three academic divisions to the question of whether they had observed a decline or an improvement in students' reading skills. The data in Table 7 show that the perception of decline in reading was greatest among the social sciences faculty. Forty-six percent perceived a decline in reading skills compared to 36 percent of humanities' and 31 percent of sciences' respondents.

Table 7. Percentage of respondents in the three academic divisions who report improvement or decline in reading skills.

	Humanities N=33	Social Sciences N=28	Sciences N=16
Improvement			
Slight	15	11	0
Moderate	3	4	0
Great	0	0	0
Decline			
Slight	24	39	25
Moderate	12	7	6
Great	0	0	0
No change	12	11	31
Insufficient information	33	29	38

The next question focused on the importance of specific aspects of reading performance for success in the various courses. The data in Table 8 show that "understanding the main idea" and "ability to reach valid conclusions" were the two skills rated as being extremely important by the greatest number of respondents. "Comprehending details" and "ability to detect biases, fallacies, and faculty reasoning" were generally considered less important reading skills. The majority of respondents considered reading speed as being relatively unimportant for successful achievement. Faculty members in the three academic divisions did not differ significantly in the importance they attach to these reading skills.

Table 8. Priorities assigned by respondents to specific reading skills (percentages).

Skill	Extremely Important	Impt.	Un-Impt.	Not at all Important
Understanding the main idea	77	22	1	0
Comprehending significant details	39	55	5	1
Ability to reach valid conclusions	55	39	4	2
Ability to detect biases, fallacies and faulty reasoning	27	44	17	12
Speed	1	26	55	18

The professors were then asked to rate their students on these specific reading skills. Table 9 summarizes the ratings. Students received the highest ratings on the ability to 'understand the main idea." We may recall that this skill was considered extremely important by many faculty members. Faculty members in the humanities especially perceived the ability to get the main idea as being one of the strengths of their students. Professors in the sciences gave slightly higher ratings to the other specific reading skills, although the difference was not significant. Overall, the students' abilities on the remaining skills were judged to be slightly less than adequate, with the "ability to detect biases/fallacies and faulty reasoning' receiving the lowest rating.

Interviewees were asked to indicate the single most prominent reading weakness that they had observed in their students. The largest proportion in all three academic divisions saw critical evaluation of content as the outstanding reading problem. An overwhelming percentage (79) of faculty members in the humanities indicated that evaluating content critically was the biggest problem for their students. One humanities professor's comment was typical: "Students can't pick out what's important." A smaller percentage (27) of all respondents considered low comprehension as a problem. Other reading weaknesses mentioned were lack of practice or experience in reading, lack of concentration, and vocabulary. "Students just don't do the required reading' was the major weakness noted by a professor in the social sciences.

Asked about the amount of reading required per week in their courses, the majority (60 percent) of the respondents indicated that the reading load was under 50 pages. The reading loads tend to be heaviest in the social sciences. Fifty percent of social sciences' respondents assigned more than 50 pages each week. The corresponding proportions for the humanities and the sciences were 45 percent and 12 percent respectively. Table 10 summarizes these data.

When asked if they thought students had difficulty handling the amount of required reading, most professors (77 percent) said they did not believe the volume of reading was a problem. The social sciences faculty members were more inclined than other faculty members to perceive the reading load as a problem for students, but the difference was not significant.

Table 9A. Faculty ratings (percentages) of students' proficiency on specific aspects of reading performance. N=77

Skill	Excellent	More than Adequate	Adequate	Less than Adequate	Very Poor	Insuff. Info
Understanding main idea	1	22	47	17	4	9
Comprehending significant details	0	8	43	34	5	10
Ability to reach valid conclusions	0	4	43	30	6	17
Ability to detect biases, fallacies, etc.	0	5	23	34	5	33
Speed	0	0	43	10	0	47

Table 9B. Mean ratings given to aspects of reading performance by faculty in the three academic divisions.*

Reading Skill	Humanities	Social Sciences	Sciences	Total
Understanding main idea	2.80	3.16	3.14	3.0
Comprehending significant details	3.39	3.50	3.29	3.4
Ability to reach valid conclusion	3.50	3.46	3.42	3.5
Ability to detect biases, fallacies, faulty reasoning	3.62	3.61	3.40	3.6
Speed	3.11	3.40	3.00	3.2

*Based on those who had sufficient information to rate students.
1=Excellent, 5=Very Poor

Table 10. Amount of reading required per week and type of reading assignment most often required according to academic division (percentages).

	Humanities	Social Sciences	Sciences	Total
Amount				
Under 50 pages	55	50	88	60
51-100 pages	33	39	6	30
More than 100 pages	12	11	6	10
Type				
Textbooks	42	79	100	68
Reference Books	3	0	0	1
Journals	6	0	0	3
Other	49	21	0	28

Textbook reading was the type of reading assignment most often required in all 100-level courses. However, a breakdown by academic division revealed that required textbook reading is most popular in the sciences and least popular in the humanities. The proportions indicating textbooks as the most frequent source of reading assignments were 100 percent for the sciences, 79 percent for the social sciences, and 42 percent for the humanities. Asked whether they had switched or dropped texts in the past five years because the ones they had used previously seemed too difficult for their students, 51 percent of all the professors said they had not changed texts for this reason.

Summary. Reading skills were rated slightly higher than the other basic skills. Faculty in the humanities appear to be most satisfied with students' reading skills. They gave higher ratings than the faculty members in the other two areas and did not perceive the extent of decline in reading proficiency reported by the social sciences faculty. Faculty gave top priority to students' ability to grasp the main idea from their reading and fortunately this was the skill on which students received the highest rating. A major weakness observed by professors was students' inability to critically evaluate the reading material.

The majority of professors in all academic divisions assigned under 50 pages each week and most did not feel the volume of reading was a problem for students. The reading load was slightly heavier in the social sciences than in the other two areas.

WRITING

The interviewees were asked about the importance of writing skills to success in their classes. As would be expected, the ratings given by faculty in the humanities and in the social sciences differed significantly from those of faculty in the sciences. Writing was considered "extremely important" by 79 percent of the humanities and 54 percent of the social sciences respondents, while no professor in the sciences gave top priority to writing skills.

Table 11. Ratings of the importance of writing skills for success in classes.

	Humanities	Social Sciences	Sciences
Extremely important	79	54	0
Important	15	32	50
Unimportant	3	7	31
Not at all important	3	7	19

Ratings of students' writing skills are shown in Table 12.

Table 12. Ratings of students' writing skills by responderts in the three academic divisions (percentages).

Writing Skills	Humanities	Social Sciences	Sciences	Total
Excellent	0	0	0	0
More than adequate	15	4	6	9
Adequate	36	36	38	36
Less than adequate	36	43	25	36
Very poor	6	7	0	5
No response	6	11	31	13

As was mentioned earlier, writing skills received lower ratings than reading skills. A breakdown by academic division revealed that respondents in the humanities tended to give higher ratings to writing skills than did respondents in the social sciences. The majority of the professors in the humanities rated writing skills as "adequate" or "more than adequate." This finding was predictable since approximately one-half of the interviewees in the humanities were teaching composition courses. On the other hand, one-half of the social sciences professors considered writing skills as "less than adequate" or "very poor."

Asked to comment on the extent to which they perceived a decline or an improvement in students' writing skills over the past five years, the professors in the social sciences were more likely to perceive a decline than were those in other divisions. Forty-three percent of these social scientists reported a decline and only 14 percent saw any improvement. The corresponding proportions reported by the humanities were 33 percent

Table 13. Percentage of respondents in the three academic divisions who report improvement or decline in writing skills.

	Humanities	Social Sciences	Sciences
Improvement			
Slight	12	7	0
Moderate	9	7	0
Great	0	0	0
Decline			
Slight	18	25	6
Moderate	12	18	6
Great	3	0	0
No Change	12	14	31
Insufficient Information	33	29	56

decline and 21 percent improvement. The majority of faculty members in the sciences was not able to comment on change in writing skills.

The next question sought to determine the kind and the amount of writing that students were required to do. Table 14 cross-tabulates the type of writing assignment and the academic division. Of the 77 professors interviewed in this survey, 47 or 61 percent required papers of some type. The breakdown of courses requiring papers in the three academic divisions were: humanities, 85 percent; social sciences 65 percent, and sciences 6 percent. Themes or essays were the most popular type of writing assignment in lower-division classes. Seventy-six percent of the respondents in the humanities and 29 percent in the social sciences required themes or essays. Reports and research papers were required in the social sciences but were not popular in the humanities. There was only one paper-requiring course in the sciences.

Table 14. Types of writing assignments in lower division classes (percentages).

	Humanities	Social Sciences	Sciences	Total
PAPERS				
Reports	6	18	0	9
Themes or essays	76	29	6	44
Research papers	3	18	0	8
EXAMINATIONS				
In-class essay	39	64	6	42
Take home essay	9	4	0	5
OTHER	15	25	44	25

The essay examination was another source of student writing. The essay exam was most favored by professors in the social sciences.

Sixty-four percent reported that they gave essay exams, compared with 39 percent for the humanities and only 6 percent for the sciences. Of course, many of the humanities courses included were composition courses which did not have a final examination. Take-home essay exams were used infrequently by any of the professors surveyed.

Nearly one-fourth of the respondents assigned other types of writing. These miscellaneous categories included interviews, book reports, and paragraphs in the humanities, outlines and compact-style writing (using 8 to 10 different concepts in a 100-word paragraph) in the social sciences and exercises, quizzes, and lab reports in the sciences.

Those professors who required papers of various types were asked to indicate the number of papers that were assigned during the semester. The data in Table 15 show that the humanities require the greatest amount of student writing. Respondents reported an average of 4 reports and 4.8 themes/essays per semester compared with 2 reports and 2.5 themes/essays in the social sciences. However, the social sciences gave slightly more essay examinations than the faculty in the humanities. Social sciences reported an average of 2.8 essay exams each semester. Asked what proportion of the examinations in the class is essay, respondents' answers ranged from 15 percent to 100 percent. A higher percentage of the examinations in the humanities was totally essay. Social sciences' professors tend to make only about one-half of their tests essay, and the remaining part objective.

Table 15. Number of writing assignments during the semester in the three academic divisions.

Frequencies	5 or more	3-4	1-2	None	Median Number
REPORTS					
Humanities	1	1	1	30	4
Social Sciences	1	1	3	23	2
Sciences	0	0	0	16	0
THEMES/ESSAYS					
Humanities	17	6	2	8	4.8
Social Sciences	1	3	4	20	2.5
Sciences	0	1	0	15	0
RESEARCH PAPERS					
Humanities	0	0	10	23	1.1
Social Sciences	0	0	6	22	1.5
Sciences	0	0	0	16	0
ESSAY EXAMS					
Humanities	0	1	12	20	1.7
Social Sciences	0	12	8	8	2.8
Sciences	0	0	1	15	2

The professors were asked about the writing skills that they consider most important for successful achievement. Table 16 shows that the two most important skills were, "the ability to organize logically"

and "ability to make meaning clear." Seventy-eight percent of the respondents gave these two skills the highest priority (important or extremely important). It should be noted that these skills depend on knowledge of writing mechanics but probably draw more heavily on cognitive ability. The other skills in order of importance were ability to write good sentences, correct usage and punctuation, writing style, and spelling. There was remarkable consistency among the three academic divisions in their rating of the importance of these writing skills.

The interviewees were given a list of common writing problems and were asked to indicate how frequently they encountered them in student writing. Table 17 indicates that the most frequently observed problems were those of usage and punctuation, spelling and lack of logical organization (65 percent placing these problems in the two highest categories of frequency). The other problems listed in order of frequency were: poor sentence structure (61% of responses in the two highest frequency ranges), poor writing style (58%), inability to develop the main idea (57%), and incoherence (33%).

A breakdown by academic division reveals that professors in the social sciences encounter writing problems among students most frequently. In social sciences, an average of 77 percent indicated the most common problems fell within the two highest frequencies compared with an average of 70 percent for humanities and 20 percent for sciences. The orders of frequency among the academic divisions were roughly the same. Lack of logical organization and usage/punctuation were the most frequently observed problems in the humanities while usage/punctuation, spelling, and lack of logical organization, in that order, were the most common problems in social sciences. Spelling errors and usage/punctuation were the most frequently observed problems in the sciences.

When asked to indicate the *single* most prominent writing deficiency, the social sciences faculty members (43%) stressed lack of logical organization as the biggest problem. One professor said, "Some papers are so bad one doesn't know where to start." Another said, "Students can't put their thoughts and ideas on paper in a way that makes it easy for another to understand what they're saying." A folklore professor reported that in his class "only 12 out of 72 papers could be considered very well written." Also concerned about the problem of logical organization, respondents in the humanities noted the close relationship between thinking and writing. Commenting on the writing deficiency a professor in humanities said, "They don't know how to think; hence they can't write." A professor of English noted, "They need to think logically in order to write well. Thinking and writing cannot be separated." Another professor related writing problems to reading. He said, "The basic problem is that students aren't reading and therefore they have trouble writing."

More than 62 percent of the professors interviewed replied that they evaluated student papers on the basis of both content and writing proficiency. A majority of the humanities professors said that they considered the writing and the content as equally important, while the social sciences' faculty members were more inclined to stress the content. As might be expected, the humanities (which included a number of English composition instructors) were more likely to downgrade for writing flaws. No professor said that he/she ever gave separate grades for content and writing.

Table 16. Priorities assigned by respondents to specific writing skills (percentages). N=77

Skill	Extremely Important	Important	Unimportant	Not at all Important	Insuff. Info
Ability to organize material logically	53	25	0	1	21
Ability to write good sentences	29	45	5	0	21
Ability to make meaning clear	60	18	0	1	21
Correct usage, punctuation	17	44	17	1	21
Spelling	12	39	23	5	21
Writing style	13	42	21	3	22

Table 17. Frequency with which writing problems are encountered (percentages).

Problem	Very Freq.	Frequently	Sometimes	Infreq.	Very Infreq.	Insuff. Info
Lack of logical organization	38	27	9	1	0	25
Usage and punctuation errors	36	31	10	0	0	22
Spelling errors	34	31	14	0	0	21
Inability to develop main idea	26	31	14	1	1	26
Poor sentence structure	29	32	14	3	0	22
Poor writing style	33	25	16	0	1	26
Incoherence	10	23	34	12	0	21

Asked if they had used any techniques designed to improve the quality of their students' writing, approximately 82 percent of the humanities professors and 71 percent of the social sciences professors indicated that they had. Giving the students hand-outs with specific directions for organizing and writing papers was reported by one-third of the respondents in the social sciences. Some also said they gave class time to teaching students how to organize and write papers and that they permitted students to rewrite and resubmit papers. In social sciences, they also were more inclined to refer students with difficulties to the writing laboratory on campus.

The humanities professors especially favored in-class editing sessions where students criticized their fellow students' papers. Other respondents reported that they provided extensive instructor analysis of papers to be followed by reworking and rewriting by the students. One professor of English composition summarized by stating, "Everything we do is directed toward improving students' writing."

Summary. Students' writing skills were perceived as being less adequate than their reading skills. The social sciences faculty were especially concerned about the quality of writing; almost half of them believe that writing skills have declined during the past five years.

Writing assignments were not restricted to the English department. Sixty-one percent of all the professors interviewed reported that they required papers; the theme or essay was the most popular type of written assignment in lower-division classes. Essay exams were also widely used, especially in the social sciences and humanities.

Although faculty report that errors of usage, punctuation, and spelling are the most frequently encountered problems, they are more concerned about students' ability to organize logically and to make the meaning clear. The "lack of logical organization" was singled out as the most prominent writing deficiency. Professors tended to relate this writing problem to the students' lack of logical thinking and to a lack of sufficient reading. Because of their concern about the quality of writing, professors in all departments are trying to help students improve. Many take class time to teach a unit on writing papers; others prepare hand-outs with detailed instructions on organizing and writing. Students were encouraged or required to re-write inferior papers.

MATHEMATICS

The first question sought to establish the importance of the basic mathematical skills for success in the classes taught by the respondents. These ratings are shown in Table 18. The differences in the three academic divisions were predictable. Mathematics skills were reported to be of no importance by 100 percent of the humanities faculty. Only 25 percent of the social sciences faculty (mainly economics professors) were sufficiently concerned to rate mathematics "important" or "extremely important." Eighty-one percent of the respondents in the sciences considered mathematics either "important" or "extremely important."

Table 18. Ratings of the importance of mathematics skills for success in classes.

	Humanities	Social Sciences	Sciences	Total
Extremely important	0	4	50	12
Important	0	21	31	14
Unimportant	21	32	13	23
Not at all important	79	43	6	51

The professors were asked about the specific mathematical skills they considered most important. Table 19 shows that the basic mathematical operations of addition, subtraction, multiplication, division and computation with whole numbers, decimals, and percentages were considered the most important skills for students. Algebra and geometry were rated as somewhat less important. Among the faculty in the sciences, six percent had seen an improvement in mathematics skills over the past five years, 12 percent perceived a decline, and 31 percent reported "no change." Table 20 summarizes the ratings of students' mathematics skills.

The results of the survey at this point are somewhat tenuous. Ratings were made only by approximately one-fourth of the respondents. The results show that most of the professors who were able to rate them considered the students' skills in basic arithmetic and whole number computation as adequate. Skills involving decimals, fractions and percents, ratios and proportions, and geometry were rated slightly lower. Students received the lowest rating on algebra.

When asked to identify the single most prominent mathematics deficiency, professors reported a wide variety of problems. Perhaps the attitude of a number of respondents was expressed by a chemistry professor: "Just basic mathematical knowledge is lacking. Anything abstract is difficult for students as, for example, letting letters represent numbers. Students cannot estimate. They must rely on calculators." An economics professor noted, "All mathematical skills need improvement. My class would be upgraded if math skills were better." A professor in geology said that the most prominent deficiency he had observed was "the 6th grade math skills that students should have and don't."

Table 19. Priorities assigned by respondents to specific mathematical skills (percentages). N=77

Skill	Extremely Important	Important	Unimportant	Not at all Important
Knowing basic facts & prodecures (+,-,x,÷)	17	10	0	73
Computation with whole numbers	14	13	0	73
Computation with decimals, fractions, percents	14	13	0	73
Ratios and proportions	12	10	4	74
Algebra	6	17	4	73
Geometry	10	9	8	73

Table 20. Faculty ratings of students' basic mathematical skills (percentages).

Skill	Excellent	More than Adequate	Adequate	Less than Adequate	Very Poor	Insuff. Info	Mean Rating
Basic facts (+,-,x,÷)	3	4	12	6	1	74	3.00
Computation with whole numbers	3	3	13	6	1	74	3.05
Decimals, fractions, percents	0	1	10	10	4	74	3.65
Ratios and proportions	0	1	7	10	5	77	3.83
Algebra	0	0	5	13	7	75	4.05
Geometry	0	0	8	8	3	81	3.71

Seventy-five percent of the science professors said that they had to review for students the mathematics skills that were needed in their classes. The same number reported that they permitted students to use calculators. A chemistry professor noted that he allowed calculators because "students couldn't do the examinations without their calculators."

The majority of the science professors perceive that students dislike and are definitely more anxious about the mathematical parts of their courses. An astronomy professor observed that the general fear of mathematics was the biggest problem.

The importance of proficiency in mathematics skills is underscored by the finding that 50 percent of the professors in the sciences and 18 percent in the social sciences report that their discipline is becoming more mathematical.

Summary. Mathematics skills could be rated by only about 25 percent of the respondents, most of whom were in the sciences. Professors were more concerned with students' proficiency in the basic mathematical operations involving whole numbers and decimals than they were with algebra and geometry. Generally they considered the students' elementary mathematical skills as adequate, but perceived that students dislike and are much more anxious about the mathematical parts of the science courses. Reviews of the required mathematics were necessary and, of course, calculators were a "must."

STUDY SKILLS

The respondents were asked about the importance of study skills for success in their classes. Table 21 shows that most of the respondents in the three academic divisions believed that study skills are very important for successful achievement. Study habits ranked second only to reading as an essential basic skill in the respondents' classes. The social sciences professors attached somewhat greater importance to study skills than did professors in the other two areas.

Table 21. Ratings of the importance of study skills for success in class (percentages).

	Humanities	Social Sciences	Sciences
Extremely important	46	75	56
Important	49	25	31
Unimportant	5	0	0
Not at all important	0	0	13

Professors in the humanities perceived their students' study skills as somewhat more adequate than did professors in the sciences and social sciences. Sixty-one percent of the respondents in the humanities rated

their students' study skills as "adequate" or "more than adequate." The corresponding proportions for the sciences and social sciences were 44 and 43 percent respectively. The data in Table 22 show that the social sciences professors gave the lowest rating to study skills. More than half of them considered student study skills as "less than adequate." It may be noted that all of the social science professors felt able to rate study skills in contrast to those in the humanities and the sciences.

Table 22. Ratings of students' study skills by respondents in the three academic divisions (percentages).

Study Skills	Humanities	Social Sciences	Sciences	Total
Excellent	0	0	0	0
More than adequate	6	4	0	4
Adequate	55	39	44	47
Less than adequate	27	54	31	38
Very poor	0	4	6	3
No response	12	0	19	9
Mean rating	3.24	3.57	3.54	3.43

When asked if they had seen an improvement or a decline in study skills in recent years, only nine percent of the humanities professors and 18 percent of the social scientists reported any improvement. About 40 percent of the professors in all three divisions indicated a slight or moderate decline. The perception of decline was slightly greater among the social sciences faculty. Professors attributed the decline mainly to student laziness. A comment by a social science professor was typical: "They don't have study skills because they are lazy. They just don't study, not because they can't, but they just don't. There's a lack of responsibility on the student's part." Another professor noted, "An improper mind-set for doing college level work... Students can't handle independent study. They want to be told what to do." Others felt that the secondary schools are to blame for the poor study habits. A professor in humanities summarized this point of view when he said, "High schools aren't teaching study skills. They give busy work, but they don't encourage real study skills."

Table 23. Percentage of respondents in the three academic divisions who report improvement or decline in study skills.

		Humanities	Social Sciences	Sciences
Improvement -	Slight	6	11	0
	Moderate	3	7	0
	Great	0	0	0
Decline -	Slight	21	32	12
	Moderate	18	11	25
	Great	0	0	0
No change		18	14	25
Insufficient information		33	25	38

Summary. Study skills are considered to be extremely important to successful achievement in college. Professors were almost equally divided in perceiving students' study skills as "adequate" and "less than adequate." The social sciences faculty members were most dissatisfied with study skills.

Conclusions

The data presented in the study appear to lead to the following conclusions:

1. The majority of the faculty members feel that students' basic skills have declined over the past few years.
2. The decline in basic skills is attributed mainly to the lack of experience and development of the skills at the high school level.
3. Most faculty members are in favor of having remedial courses in the basic skills at the University.
4. Students more nearly meet faculty expectations in reading than in the other basic skills.
5. Understanding of the main idea was the specific reading skill considered most important to successful achievement and was the skill receiving the highest proficiency rating.
6. Undergraduate students are being required to write in classes in all departments. The theme or essay is the most popular type of writing assignment in lower-division classes.
7. Faculty are less concerned about problems of usage, punctuation, and spelling in student writing than they are with problems of logical organization.
8. Large majorities of the faculty are directing special effort in their classes toward improving the quality of students' writing.
9. Faculty are more concerned with students' proficiency in the basic mathematical operations than with their proficiency in algebra and geometry.
10. The professors in the sciences who were able to rate mathematical skills feel that the students' knowledge of the basic mathematical facts and procedures is adequate, but also feel students dislike and are much more anxious about the mathematical part of the courses.
11. Students' study skills are considered extremely important to success in college. A sizable proportion of the faculty members consider their students' study skills to be inadequate with the lowest ratings being given by social sciences faculty.